EUROCAE/WG 49

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New Text for ED 73 to Address NTSB Safety Recommendation A-07-35 through A-07-37 WG 49 Action A-10-17

1. Introduction

An action was placed on Kevin Hallworth to provide suitable text for Eurocae document ED 73 to address the NTSB safety recommendations following the mid air collision in Brazil last year.

The NTSB Safety Recommendations were:

1.1 (A-07-35) Require, for all aircraft required to have a traffic alert and collision avoidance system installed and for existing and future system designs, that the airborne loss of collision avoidance system functionality, for any reason, provide an enhanced aural and visual warning requiring pilot acknowledgment.

1.2 (A-07-36) Evaluate the feasibility of providing enhanced aural and visual warnings for future
systems that may provide ground collision avoidance functionality. If feasible, require that future design criteria include such warning functionality.

1.3 (A-07-37) Inform all pilots who use transponders or transponder/traffic alert and collision avoidance system (TCAS) units about the circumstances of this accident and the lack of a conspicuous warning to indicate the loss of collision protection resulting from a compromise in functionality of either the transponder or TCAS unit and ask all pilots who use transponders or transponder/TCAS units to become familiar with the annunciations currently used to indicate failure or lack of active functionality of these components.

2. Review of NTSB Recommendations

2.1 A-07-35 – No changes to Eurocae ED 73 required.

2.2 A-07-36 - No changes to Eurocae ED 73 required.

2.3 A-07-37 – This paragraph recommends informing all pilots about the potential lack of a conspicuous warning following the loss transponder/TCAS and also asks all pilots to become familiar with the operation of the transponder and TCAS. There is no direct requirement which would affect the text in Eurocae ED 73, however, it would be advisable to improve the wording in Section 2.4 to strengthen the requirement to ensure the displays and controls are logical and pilot error tolerant.

3. Proposed Text for Section 2.4 of Eurocae ED 73

2.4 OPERATION OF CONTROLS

The operation of controls, intended for use during flight, shall be evaluated to ensure they are logical and tolerant to human error. In particular, where transponder functions are integrated with other system controls, the manufacturer shall ensure that unintentional transponder mode switching (i.e. ‘ON to ‘STANDBY’ or ‘OFF’) is minimised. This may take the form of a confirmation of mode switching, required by the flight crew. Typically ‘Line Select’ Keys, ‘Touch Screen’ or ‘Cursor Controlled/Tracker-ball’ methods used to change transponder modes should be carefully designed to minimize crew error.

All possible positions, combinations and sequences of pilot accessible controls shall not result in a condition detrimental to the continued performance of the equipment or continued safe flight of the aircraft.

The flight crew shall be aware, at all times, of the transponder mode. Change of transponder mode shall be annunciated to the flight crew via suitable means. An acceptable means could be flashing of the transponder mode reversion or a caution alert from the master warning system.

Controls which are not intended to be operated in flight shall not be readily accessible to the flight crew.